

REMARKS

Applicants respectfully request reconsideration of the present application in view of the reasons that follow.

I. Disposition of the claims

Claims 17-41 are pending and stand rejected.

II. Specification

The specification was amended to update the cross-reference to related applications. The information was taken from PAIR and placed into words in view of the record. No new matter has been added.

III. Figures

The Examiner is respectfully asked to indicate whether or not the drawings were accepted on form PTO 326 (Office action summary).

IV. Rejections under 35 USC § 103(a)

There are two obviousness rejections, each of which is addressed under a separate header.

A. Alexander (U.S. Pat. No. 4,944,985)

Claims 17, 21-24, and 28-41 were rejected as obvious over the teachings of Alexander. Office action, pp. 2-3. The PTO admitted that “Alexander et al does not teach the exact same proportions as recited in the instant claims,” Office action, p. 3, but urged that “the compositional proportions taught by Alexander et al overlap the instantly claimed proportions,” Office action, p. 3, and that it would have been obvious “to select any portion of the disclosed ranges from the ranges disclosed....” Office action, p. 3. This rejection is respectfully traversed.

The stated fact that “the compositional proportions taught by Alexander et al overlap the instantly claimed proportions” is believed untrue. The teachings of Alexander focus on

“spherical” particles. For example, in the cited passage showing the size range from 5 to 500 nanometers concerns particles that are “substantially spherical in shape or colloidal”:

35 material which may or may not be inert and which can
be processed into ultrafine particles. When the particles
are substantially spherical in shape or colloidal, the
diameter of the particles are preferably less than 0.5
microns and in some instances the preferred range of
40 size is 5 to 500 nanometers.

Alexander, col. 6, ll. 36-40. Furthermore, Alexander teaches that “inks require ... substantially spherical particles in order to achieve good performance”:

As Metallic Inks

Metallic inks involving noble metals are, today, commonly used. These inks require discrete, constant sized 65 and substantially spherical particles in order to achieve good performance. Silver composites containing silica can be prepared in which there is little or no aggrega-

Alexander, col. 15, ll. 65-67. Since spherical particles have an aspect ratio of one, there would be no need to consider the size of the particles. Alexander teaches away from doing what the present inventors have done.

Indeed, it is well established that only result effective variables may be optimized. MPEP § 2144.05 II B. Take one variable at a time, starting with the aspect ratio. Here, where the only recognized result would be to achieve the opposite of “good performance,” the proposed modification of the aspect ratio was certainly not suggested by Alexander. And for the second variable, size, Alexander explicitly teaches that when the range of size (diameter) is 5 to 500 nanometers, the particles are substantially spherical in shape. For sure, Alexander teaches away from doing what the present inventors have done.

In summary, the present rejection should be withdrawn.

B. Alexander in view of Nakayama (U.S. Pat. No. 5,718,047)

Claims 18-20 and 25-27 were rejected over the combined teachings of Alexander in view of Nakayama. Office action, pp. 4-5. The PTO admitted that Alexander fails to teach nanowhiskers, plates and fibers. Office action, p. 4. To remedy these deficiencies, the PTO combined the teachings of Alexander with those of Nakayama, the cited passage of which is quoted below:

The conductive paste used for forming the circuit pattern is a liquid compound of a matrix resin and a conductive filler, which can be diluted by a solvent on request. The matrix resin can be the one made by dissolving a thermoplastic resin in a solvent, a liquid thermosetting resin, a ⁵⁵ thermosetting resin dissolved in a solvent, and a liquid ultraviolet curing resin and so on.

The conductive filler can be a metal filler or a carbon filler. The metal filler includes particles, fiber, whisker, or a flake of such metals as gold, silver, nickel, copper, or alloy or ⁶⁰ oxide thereof. Further, the carbon filler includes a particulate

Office action, p. 4 (citing Nakayama, col. 5, ll. 51-61). According to the PTO, it would have been obvious “to have replaced particles with fiber, whisker and flake (plate),” because they were “art recognized equivalents.” This rejection is respectfully traversed.

Firstly, Alexander teaches away from the combination and proposed modification. As noted above with the aspect ratio, the only recognized result would be to achieve the opposite of “good performance.” Thus, the proposed modification of the aspect ratio was certainly not suggested by either Alexander or Nakayama. Furthermore, Alexander explicitly teaches that when the range of size (diameter) is 5 to 500 nanometers, the particles are substantially spherical in shape, not fiber, whisker or flake (plate). For sure, Alexander and Nakayama teach away from doing what the present inventors have done.

Secondly, Nakayama was not combined to remedy the deficiencies of Alexander. Thus, the rejection should be withdrawn for this reason too.

Thirdly, the level of skill in the art cannot be relied upon to provide the suggestion to combine references. MPEP § 2143.01. Nor can references be combined or modified without a desirable reason. MPEP § 2143.01 III. Here, Alexander concerns a process for the electrolysis plating of easily reproducible metals onto ultrafine, usually inert, particles, Alexander Abstract, and admittedly fails to teach nanowhiskers, plates and fibers. Nakayama discloses fiber, whisker, or a flake (not on the nanoscale) but actually concerns a method of manufacturing an electrical junction box. It is respectfully submitted that there is no suggestion to combine the teachings of manufacturing an electrical junction box with electrolysis plating in order to arrive at an ink, let alone a reasonable expectation of success.

In summary, the rejection should be withdrawn.

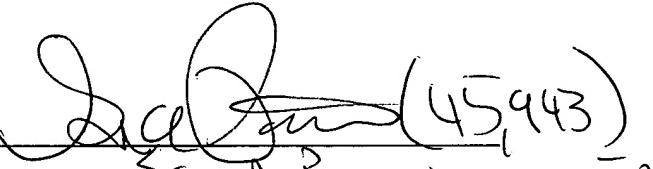
CONCLUSION

Applicants believe that the present application is in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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